

# Joe Brennan

PHD CANDIDATE

*Dynamics of Ecological and Evolutionary Processes lab of the University of California, Davis*

☎ He/Him | ✉ jlbrennan@ucdavis.edu | ☎ 0009-0006-4178-9919 | 📷 biologyjoe87 | 🌐 mathecol-joe-brennan

*I am interested in the ecological and evolutionary mechanisms of coexistence, community assembly, and community disassembly using mathematical and computational models.*

## Research Interests

- Bioinformatically exploring the world of big, public data in new and interesting ways.
- Combining scientific domains to create a pleasant end-user experience.
- I have overcome many obstacles to be where I am today and I am just happy to be here.

## Education

### Doctor of Philosophy

UNIVERSITY OF CALIFORNIA, DAVIS

California, USA

2022 - Present

- Population Biology Graduate Group

### Bachelors of Arts & Science

COLLEGE OF CHARLESTON HONORS COLLEGE

Charleston, South Carolina, USA

2018 - 2022

- Biology, BA
- Mathematics, BS

## Research Experience

### Graduate Research

UNIVERSITY OF CALIFORNIA, DAVIS

Davis - California

2020 - Present

- Pangenomic and novel database curation for the sourmash software ecosystem
- Case vs control multiomic investigation of public data
- Image analysis and quantification pipeline for ectodermal derivatives specified in early development
- Professors for the Future (PFTF) Fellow
- NIH Molecular Cell Biology T32 Fellowship Affiliate
- NIH Initiative for Maximizing Student Development (IMSD) Affiliate

### Junior Research Specialist

UNIVERSITY OF CALIFORNIA, DAVIS

Davis - California

2019 - 2020

- Molecular evolution of thermal tolerance in coral
- Knot theory topology of dsDNA in bacteriophage DNA packaging

### Undergraduate Research

CONCORDIA UNIVERSITY, ST. PAUL

St. Paul - Minnesota

2017 - 2019

- Novel artificial culture vessel for shell-less chick development

### Tutor

CONCORDIA UNIVERSITY, ST. PAUL

St. Paul - Minnesota

2016 - 2018

- In subjects of Calculus, Physics, Chemistry, and Biology

## Professional Service

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### Scholarly Literature Workshop Author and Lead instructor

DATALAB

University of California, Davis

2024 - Present

### Gene Regulatory Networks for Development Teaching Assistant

MARINE BIOLOGY LABORATORY

University of Chicago

- 2024

### Admissions Committee Member

PREP@UCD

University of California, Davis

2023 - Present

### Recruitment Colloquium Mentor

BMCDB GRADUATE GROUP

University of California, Davis

2020 - 2024

### Biology Graduate Admissions Pathways Mentor

BioGAP

University of California, Davis

2020 - 2021

### NSF GRFP Grant Writing Working Group Creator and Lead Instructor

ROGERS LAB

University of California, Davis

2020 - 2021

## Community Involvement

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### AISES Rocketry Team Founding Co-Mentor

LETT'S LAB

University of California, Davis

2021 - 2023

### Grad & Post Doc UCD SACNAS Chapter Founding Board Member

COLLEGE OF BIOLOGICAL SCIENCES

University of California, Davis

2020 - 2021

### Young Scientist Program Volunteer

COLLEGE OF BIOLOGICAL SCIENCES

University of California, Davis

2019 - 2020

### 3D Printing Club Founder and President

MATH AND BIOLOGY DEPARTMENT

Concordia University, St. Paul

2017 - 2018

### Sexual Assault Victim Advocate

UNITED STATES AIR FORCE

Joint Base McGuire Dix Lakehurst

2012 - 2014

### Flight line Training Leader

UNITED STATES AIR FORCE

Joint Base McGuire Dix Lakehurst

2012 - 2014

### Physical Training Leader

UNITED STATES AIR FORCE

Joint Base McGuire Dix Lakehurst

2011 - 2014

### Leadership Mentor

UNITED STATES AIR FORCE

Sheppard Air Force Base

2010 - 2011

### Treasurer

STUDENT GOVERNMENT

Hennepin Technical College

2009 - 2010

### SkillsUSA participant

AUTOMOTIVE DEPARTMENT

Hennepin Technical College

2009 - 2010

## Funding and Grants

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## Graduate Research Fellowship Program

NATIONAL SCIENCE FOUNDATION (\$159,000)

University of California, Davis

2022 - Present

## Honors and Awards

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### Professors for the Future

A COMPETITIVE, LEADERSHIP-DEVELOPMENT PROGRAM

University of California, Davis

May 2024

### College of Biological Science's Dean's Mentorship Award

IN RECOGNITION OF GRADUATE STUDENTS WHO HAVE EXCELLED IN THE MENTORSHIP OF UNDERGRADUATE STUDENTS

University of California, Davis

May 2022

### NSF Graduate Research Fellowship Program (GRFP) Award

University of California, Davis

March 2020

### NIH Undergraduate Preparation Fellowship (UPF) Award

University of California, Davis

March 2020

### NIH Postbaccalaureate Research Education Program (PREP) Award

University of California, Davis

May 2019

### Honors in Research

Concordia University, St. Paul

Decemeber 2018

### Paul W. Stor Biology Award

FOR EXCELLENCE AND DEDICATION TO UNDERGRADUATE BIOLOGICAL SCIENCES

Concordia University, St. Paul

May 2018

### Dean's List

Concordia University, St. Paul

2014 - 2018

### Airman of the Quarter

ACKNOWLEDGMENT OF EXCELLENCE WHILE SERVING IN THE UNITED STATES AIR FORCE

Joint Base McGuire Dix Lakehurst

January 2013

### Academic Excellence

Hennepin Technical College

May 2010

## Skills

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### Programming Languages

BASH, R, JAVASCRIPT, PYTHON, SQL

### Markup Languages

CSS, HTML, L<sup>A</sup>T<sub>E</sub>X, MARKDOWN, RMARKDOWN

### Other Languages

SNAKEMAKE

### Version Control

GIT/GITHUB

### Text Editors

RSTUDIO, VIM/NEOVIM

### Health

SELF-AID BUDDY CARE (SABC), CPR TRAINED, AED CERTIFIED

## Safety

SELF-DEFENSE COORDINATOR, SEXUAL ASSAULT VICTIM ADVOCATE (SAVA)

## Mechanics

FCC GROL, CERTIFIED AIRCRAFT MECHANIC, CERTIFIED AUTOMOTIVE MECHANIC

# Presentations

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### The Modern, Practical Scholar Workshop Series

University of California, Davis

AN ACCESSIBLE, EXPANDING, PERPETUAL, AND CONTINUOUSLY UPDATING WORKSHOP SERIES FOCUSED ON TRAINING SCHOLARS OF ALL CAREER STAGES IN APPLIED TECHNOLOGY TO STREAMLINE AND IMPROVE THEIR OVERALL SCHOLARSHIP TECHNIQUES

2023-2025

### My Successes and Failures of Grad School: How to Think like a Scientist

University of California, Davis

A DISCUSSION TO STUDENTS ABOUT WHO CAN BECOME A SCIENTIST

June 2024

### My Successes and Failures of Grad School: How to Think like a Scientist

Concordia University, St. Paul

A DISCUSSION TO STUDENTS ABOUT WHO CAN BECOME A SCIENTIST

September 2023

### Thoughts on academic writing: Emphasis on the GRFP

University of California, Davis

A LECTURE ON WRITING THE NSF GRFP TO IMSD STUDENTS

October 2022-24

### Relocation and the meaning of life

University of California, Davis

A LECTURE TO PREP ON PERSONAL TIPS ON MOVING ACROSS COUNTRY FOR ACADEMIA

May 2022

### Student Funding Panel

University of California, Davis

A DISCUSSION TO RECRUITS ABOUT GRADUATE STUDENT GRANTS AND FUNDS

February 2022

### Diversity, Equity, Inclusion Committee (DEIC) Gap Year Seminar

University of California, Davis

A DISCUSSION TO STUDENTS ON THE IMPACT OF TAKING A GAP YEAR

March 2021

### Diversity and Life Panel

University of California, Davis

A DISCUSSION TO RECRUITS ON LIFE EXPERIENCE IN GRADUATE SCHOOL

March 2021

### Fractal, Hausdorff, and the Euclidean Dimension

Concordia University, St. Paul

A CAPSTONE PRESENTATION ON INDEPENDENT MATHEMATICS RESEARCH

December 2018

### Mandelbrot and Julia, an Imaginary Relationship

Concordia University, St. Paul

A CAPSTONE PRESENTATION ON INDEPENDENT MATHEMATICS RESEARCH

December 2018

### Perserverance in Research

Concordia University, St. Paul

A CAPSTONE PRESENTATION ON INDEPENDENT BIOLOGY RESEARCH

November 2018

### How to count the Cantor set... You Cant?!

Concordia University, St. Paul

A PRESENTATION TO THE MATHEMATICS CLUB, SIGMA PI

November 2018

### 3D Printed Koch Snowflake Fractals

Concordia University, St. Paul

A PRESENTATION TO THE MATHEMATICS CLUB, SIGMA PI

April 2018

### Science Department Research Symposium

Concordia University, St. Paul

AN UPDATE ON CURRENT STATE OF UNDERGRADUATE RESEARCH

2017, 2018